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522 Rec'd PCT/PTO 24 FEB 2000

FORM PTO-1390 (REV. 5-93)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		CASE NO. 10329-3	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) <b>09/486648</b>	
INTERNATIONAL APPLICATION NO. PCT/AU99/00079		INTERNATIONAL FILING DATE 5 FEBRUARY 1999		PRIORITY DATE CLAIMED 5 FEBRUARY 1998 16 SEPTEMBER 1998	
TITLE OF INVENTION SYSTEM FOR HANDLING ELECTRONIC MAIL					
APPLICANT(S) FOR DO/EO/US Dennis Andrew Benjamin and Nicholas Alan Rodda					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371					
2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371					
3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).					
4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.					
5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)).					
a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).					
b. <input type="checkbox"/> has been transmitted by the International Bureau.					
c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).					
6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).					
7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).					
a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).					
b. <input type="checkbox"/> have been transmitted by the International Bureau.					
c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.					
d. <input type="checkbox"/> have not been made and will not be made.					
8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).					
9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).					
10. <input checked="" type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)) and/or amendments under Article 34.					
Items 11. to 16. Below concern other document(s) or information included:					
11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.					
12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.					
13. <input checked="" type="checkbox"/> A FIRST preliminary amendment.					
<input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.					
14. <input type="checkbox"/> A substitute specification.					
15. <input type="checkbox"/> A change of power of attorney and/or address letter.					
16. <input type="checkbox"/> Other items or information:					

U.S. APPLICATION NO. <b>097486648</b> INTERNATIONAL APPLICATION NO. PCT/AU99/00079	CASE NO. 10329-3
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17. <input type="checkbox"/> The following fees are submitted: <b>Basic National Fee (37 CFR 1.492(a)(1)-(5)):</b> Search Report has been prepared by the EPO or JPO ..... \$840.00  International preliminary examination fee paid to USPTO (37 CFR 1.492(2)(1)) ..... \$670.00  No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.492(a)(2)) ..... \$760.00  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.492(a)(3)) paid to USPTO ..... \$970.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$96.00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">CALCULATIONS</th> <th style="text-align: left;">PTO USE ONLY</th> </tr> <tr> <td colspan="2" style="height: 150px;"></td> </tr> <tr> <td style="text-align: right;">\$970</td> <td></td> </tr> </table>	CALCULATIONS	PTO USE ONLY			\$970	
CALCULATIONS	PTO USE ONLY						
\$970							

ENTER APPROPRIATE BASIC FEE AMOUNT

Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).			
Claims	Number Filed	Number Extra	Rate
Total Claims	85- 20 =	65	x \$ 18.00
Independent Claims	6- 3 =	3	x \$ 78.00
Multiple dependent claim(s) if Applicable		0	+ \$260.00
TOTAL OF ABOVE CALCULATIONS =			\$2,374
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28)			
SUBTOTAL =			\$1,187
Surcharge of \$130.00 for furnishing the English translation later than the <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).			
TOTAL NATIONAL FEE =			\$
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31), \$40.00 per property +			
TOTAL FEES ENCLOSED =			\$1,187
			Amount to be refunded
			\$
			charged
			\$

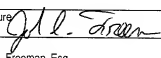
  

a.	<input checked="" type="checkbox"/>	A check in the amount of <u>\$1,187.00</u> to cover the above fees is enclosed.
b.	<input type="checkbox"/>	Please charge my Deposit Account No. 23-1925 in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed.
c.	<input checked="" type="checkbox"/>	The Assistant Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to  
 restore the application to pending status.

Send All Correspondence to:  Brinks Hofer Gilson & Lione P.O. Box 10395 Chicago, IL 60610	Signature  Name John C. Freeman, Esq. Registration Number 34483
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PTO/PCT Rec'd 10 MAY 2001 #3

09/486648

I hereby certify that this correspondence is being deposited with the United States Postal Service, with sufficient postage, as first class mail in an envelope addressed to:

The Commissioner for Patents  
Washington, D.C. 20231

on May 8, 2001

Date of Deposit

John C. Freeman

Name of applicant, inventor or  
Registered Representative

*John C. Freeman*  
Signature  
May 8, 2001

Date of Signature



Case No. 10329/3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Dennis Andrew Benjamin et al.

Examiner: Not Assigned

International Patent Application

No.: No. PCT/AU99/00079

International Filing

Date: February 5, 1999

U.S. Patent Application

Serial No: 09/486,648

U.S. Filing Date: February 24, 2000

Group Art Unit: Not Assigned

For: SYSTEM FOR HANDLING  
ELECTRONIC MAIL

STATEMENT CLAIMING SMALL ENTITY STATUS

The Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

The undersigned hereby asserts that the above-mentioned application is assigned to A PTY LTD., which qualifies for small entity status.

Respectfully submitted,

Dated: May 8, 2001

*John C. Freeman*  
John C. Freeman  
Registration No. 34,483  
Attorney for Applicants

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09/486648  
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"Express Mail" mailing label number: EL173012444US

Date of Deposit: February 24, 2000

PATENT  
CASE NO. 10329/3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application:	)	
	)	
Dennis Andrew Benjamin	)	
Nicholas Alan Rodda	)	
	)	Group Art Unit: unassigned
International	)	
Application No. PCT/AU99/00079	)	
	)	
International	)	
Filing Date: February 5, 1999	)	
	)	
U.S. Patent Application	)	
Serial No.: unassigned	)	
	)	
Filed: February 24, 2000	)	
	)	Examiner: unassigned
	)	
For: SYSTEM FOR HANDLING	)	
ELECTRONIC MAIL	)	

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

This Preliminary Amendment is being presented to better describe Applicant's claimed invention and it is believed does not present any new matter. Please amend the specification and the claims as follows:

**In the Specification:**

On page 1, after the title and before the title "Field of the invention", insert in on a separate line the phrase - Background of the Invention- -;

On page 1, line 11, replace the phrase "Background to the invention" with - - Description of the Related Art- -.

On page 3, line 26, replace "said" with - -the- -.

On page 4, lines, 3-5, 11-13, 20, 27 and 28, replace all occurrences of "said" with - -the- -.

On page 19, after line 18, insert the following new paragraph:

- -The invention may be embodied in other forms than those specifically disclosed herein without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive, and the scope of the invention is commensurate with the appended claims rather than the foregoing description.- -

On page 20, line 1, replace the phrase "The claims defining the invention are as follows" with - -We Claim- -.

After page 24, insert a new page 25 that reads as follows:

- -Abstract of the Disclosure

A method of conveying an email message by receiving an email message from its sender, the email message including an address field in which an account name portion of the address field is a descriptor of the intended recipient of the email message and which is different from a correct account name of the intended recipient, wherein the descriptor being a combination of one or more identifying elements associated with the intended recipient. The method further includes locating in a database of descriptors and email addresses the email address associated with the descriptor and forwarding the message to the email address yielded by the database.- -

**In the Claims:**

Please cancel claims 1-29 without prejudice and add claims 30-115 as follows:

- -30. A method of conveying an email message including an address field in which an account name portion of the address is a descriptor of an intended recipient of the message and which is different from the account name of the intended recipient, the method comprising:

searching in a database of descriptors and email addresses for the email address associated with a descriptor associated with an email message, wherein said

descriptor is a combination of one or more identifying elements associated with the intended recipient of said email message; and

transmitting said email message to said email address found during said searching of said database if an email address is located where a prescribed threshold of a match between the descriptor of said email message and descriptors within said database is exceeded.

31. The method of claim 30, wherein said descriptor is selected from a list including a telephone number associated with said intended recipient, a business name associated with said intended recipient, a personal name associated with said intended recipient, and a part of a street address associated with said intended recipient.

32. The method of claim 30, wherein said descriptor includes a concatenation of a name and city.

33. The method of claim 30, wherein said descriptor includes a concatenation of name and telephone number.

34. The method of claim 30, further comprising:

generating and conveying a return email notification to the sender of said email message.

35. The method of claim 34, wherein said return email notification reports the status of said database search and whether or not said email message has been received.

36. The method of claim 35, wherein said return email notification also reports when said email message has been received.

37. The method of claim 34, wherein said return email notification includes notification of a failure to match said descriptor with an email address located within said database.

38. The method of claim 35, wherein said return email notification includes notification of a failure to match said descriptor with an email address located within said database.

39. The method of claim 30, wherein especially formatted email messages are interpreted as database queries, and not as email messages to be readdressed and forwarded.

40. The method of claim 30, wherein said database comprises fields for email addresses, and separate fields for each of given name, surname, telephone number, name of business and/or address; at least one of the separate fields being completed for each email address.

41. The method of claim 30, further comprising:

determining from said database if either of the sender or recipient are not a registered user of said method; and

forwarding to any such unregistered user information on said method and its advantages and/or a request to register.

42. The method of claim 41, wherein an advice is forwarded to the sender or recipient of said email message who is a registered user of said method that the information has been forwarded to the unregistered user of said method.

43. The method of claim 41, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

44. The method of claim 42, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

45. The method of claim 43, wherein when the unregistered user of said method is registered as a user of said method, a search is conducted to determine if

any messages are awaiting forwarding to the user and, if so, to forward to the user any such messages.

46. The method of claim 45, wherein when a further advice is sent to the registered user of said method advising the registered user of said method that the unregistered user of said method has become registered onto said method.

47. A method for handling undeliverable electronic mail, comprising:

receiving an email message including an invalid destination address that includes a descriptor;

searching a database for records partially or completely matching parts of said invalid destination address; and

forwarding said email message to a valid email address retrieved from said database according to the result of said searching, if a prescribed threshold of match between said invalid destination address and valid email address is exceeded.

48. The method of claim 47, wherein said descriptor is selected from a list including a telephone number associated with said intended recipient, a business name associated with said intended recipient, a personal name associated with said intended recipient, and a part of a street address associated with said intended recipient.

49. The method of claim 47, wherein said descriptor includes a concatenation of a name and city.

50. The method of claim 47, wherein said descriptor includes a concatenation of name and telephone number.

51. The method of claim 47, further comprising:



generating and conveying a return email notification to the sender of said email message.

52. The method of claim 51, wherein said return email notification reports the status of said database search and whether or not the email message has been received.

53. The method of claim 52, wherein said return email notification also reports when said email message has been received.

54. The method of claim 51, wherein said return email notification includes notification of failure to match said descriptor with an email address located within said database.

55. The method of claim 52, wherein said return email notification includes notification of failure to match said descriptor with an email address located within said database.

56. The method of claim 47, wherein especially formatted email messages are interpreted as database queries, and not as email messages to be readdressed and forwarded.

57. The method of claim 47, wherein said database comprises fields for email addresses, and separate fields for each of given name, surname, telephone number, name of business and/or address; at least one of the separate fields being completed for each email address.

58. The method of claim 47, further comprising:

determining from the database if either of the sender or recipient are not a registered user of said method; and

forwarding to any such unregistered user information on said method and its advantages and/or a request to register onto said method.

59. The method of claim 58, wherein an advice is forwarded to the sender or recipient who is a registered user of said method that the information has been forwarded to the unregistered user of said method.

60. The method of claim 58, wherein said forwarded information includes all necessary documents to enable the unregistered user to become registered as a user of said method.

61. The method of claim 59, wherein said forwarded information includes all necessary documents to enable the unregistered user to become registered as a user of said method.

62. The method of claim 60, wherein when the unregistered user is registered as a user of said method, a search is conducted to determine if any messages are awaiting forwarding to the user of said method and, if so, to forward to the user any such messages.

63. The method of claim 62, wherein when a further advice is sent to the registered user of said method advising the registered user that the unregistered user has become registered onto said method.

64. A method of conveying an email message comprising:

receiving an email message forwarded by a sender, said email message including an invalid destination address that includes a descriptor;

searching a database for records partially or completely matching parts of said invalid destination address; and

sending a notification message to the sender of said email message, said notification message advising the sender of the results of said database search.

65. The method of claim 64, wherein said descriptor is selected from a list including a telephone number associated with said intended recipient, a business name

associated with said intended recipient, a personal name associated with said intended recipient, and a part of a street address associated with said intended recipient.

66. The method of claim 64, wherein said descriptor includes a concatenation of a name and city.

67. The method of claim 64, wherein said descriptor includes a concatenation of name and telephone number.

68. The method of claim 64, further comprising:

generating and conveying a return email notification to the sender of the email message.

69. The method of claim 68, wherein said return email notification reports the status of said database search and whether or not the email message has been received.

70. The method of claim 69, wherein said return email notification also reports when said email message has been received.

71. The method of claim 68, wherein said return email notification includes notification of failure to match said descriptor with a record located within said database.

72. The method of claim 69, wherein said return email notification includes notification of failure to match said descriptor with a record located within said database.

73. The method of claim 64, wherein especially formatted email messages are interpreted as database queries, and not as email messages to be readdressed and forwarded.

74. The method of claim 64, wherein said database comprises fields for email addresses, and separate fields for each of given name, surname, telephone number,

name of business and/or address; at least one of the separate fields being completed for each email address.

75. The method of claim 64, further comprising:

determining from the database if either of the sender or recipient are not a registered user of said method; and

forwarding to any such unregistered user of said method information on said method and its advantages and/or a request to register onto said method.

76. The method of claim 75, wherein an advice is forwarded to the sender or recipient who is a registered user of said method that the information has been forwarded to the unregistered user of said method.

77. The method of claim 75, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

78. The method of claim 76, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

79. The method of claim 77, wherein when the unregistered user of said method is registered as a user of said method, a search is conducted to determine if any messages are awaiting forwarding to the user and, if so, to forward to the user any such messages.

80. The method of claim 79, wherein when a further advice is sent to the registered user of said method advising the registered user that the unregistered user has become registered onto said method.

81. A method of conveying an email message comprising:

receiving an email message from its sender, said email message including an address field in which an account name portion of the address field is a descriptor of the intended recipient of said email message and which is different from a correct account name of said intended recipient, wherein the descriptor being a combination of one or more identifying elements associated with the intended recipient;

locating in a database of descriptors and email addresses the email address associated with said descriptor; and

forwarding the message to the email address yielded by the database.

82. A method as claimed in claim 81, wherein the database includes fields corresponding to commonly-used identifiers such as a telephone number, business name, street address, personal name, alias, or nickname.

83. The method of claim 81, wherein said descriptor is selected from a list including a telephone number associated with said intended recipient, a business name associated with said intended recipient, a personal name associated with said intended recipient, and a part of a street address associated with said intended recipient.

84. The method of claim 81, wherein said descriptor includes a concatenation of a name and city.

85. The method of claim 81, wherein said descriptor includes a concatenation of name and telephone number.

86. The method of claim 81, further comprising:

generating and conveying a return email notification to the sender of the email message.

87. The method of claim 86, wherein said return email notification reports the status of said database search and whether or not the email message has been received.

88. The method of claim 87, wherein said return email notification also reports when said email message has been received.

89. The method of claim 86, wherein said return email notification includes notification of failure to match said descriptor with an email address located within said database.

90. The method of claim 87, wherein said return email notification includes notification of failure to match said descriptor with an email address located within said database.

91. The method of claim 81, wherein especially formatted email messages are interpreted as database queries, and not as email messages to be readdressed and forwarded.

92. The method of claim 81, wherein said database comprises fields for email addresses, and separate fields for each of given name, surname, telephone number, name of business and/or address; at least one of the separate fields being completed for each email address.

93. The method of claim 81, further comprising:

determining from the database if either of the sender or recipient are not a registered user of said method; and

forwarding to any such unregistered user of said method information on said method and its advantages and/or a request to register onto said method.

94. The method of claim 93, wherein an advice is forwarded to the sender or recipient who is a registered user of said method that the information has been forwarded to the unregistered user of said method.

95. The method of claim 93, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

96. The method of claim 94, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

97. The method of claim 95, wherein when the unregistered user of said method is registered as a user of said method, a search is conducted to determine if any messages are awaiting forwarding to the user and, if so, to forward to the user any such messages.

98. The method of claim 97, wherein when a further advice is sent to the registered user of said method advising the registered user that the unregistered user has become registered onto said method.

99. A method of determining an email address comprising:

providing a database where email addresses are linked with descriptors relevant for a person at each email address so that a user can provide one or more of the descriptors;

enabling a search to be conducted of the database to determine a relevant email address, the descriptors including at least one of a given name, surname, address, name of business, and/or telephone number;

adapting a server to recognize that information given in an account name portion of the email address is insufficient or not in the correct form for delivery; and

passing a necessary message to an operator of the database which locates the correct or complete address, and forwards the necessary message.

100. The method of claim 99, wherein the database is at said server.

101. The method of claim 99, wherein the database is separate from said server.

102. The method of claim 99, wherein the operator of said database passes said correct or complete email address back to the server to enable it to send said necessary message.

103. The method of claim 99, wherein said database comprises fields for email addresses, and separate fields for each of given name, surname, telephone number, name of business and/or address; at least one of the separate fields being completed for each email address.

104. The method of claim 99, further comprising:

determining from the database if either of the sender or recipient are not a registered user of said method; and

forwarding to any such unregistered user information on said method and its advantages and/or a request to register onto said method.

105. The method of claim 104, wherein an advice is forwarded to the sender or recipient who is a registered user of said method that said forwarded information has been forwarded to the unregistered user of said method.

106. The method of claim 104, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

107. The method of claim 105, wherein said forwarded information includes all necessary documents to enable the unregistered user of said method to become registered as a user of said method.

108. The method of claim 106, wherein when the unregistered user of said method is registered as a user of said method, a search is conducted to determine if any messages are awaiting forwarding to the user and, if so, to forward to the user any such messages.



109. The method of claim 108, wherein when a further advice is sent to the registered user of said method advising the registered user that the unregistered user of said method has become registered onto said method.

110. A method to enable users of computer-based telecommunication systems to independently locate an address of a user, the address system comprising:

providing an email address for an email message sent by a computer-based telecommunications system; and

placing numeric characters of a number of a telecommunications device of the user within at least one portion of said email address, wherein the at least one portion being that portion which identifies the user.

111. The method of claim 110, wherein the number of the telecommunications device includes at least one of the area code within the user's country; the country code of the user's country; or the personal access number within the user's country.

112. The method of claim 110, wherein said computer-based telecommunication system is the internet.

113. The method of claim 110, wherein said telecommunications device is selected from a list including a telephone, facsimile, pager, mobile telephone and satellite connected technology.

114. The method of claim 110, wherein at least one portion of said email address is alpha numeric.

115. The method of claim 114, wherein the alpha includes at least a part of a name of the user.- -.

Respectfully submitted,



John C. Freeman  
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Attorney for Applicants

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Dated: February 24, 2000

## ABSTRACT OF THE DISCLOSURE

A method of conveying an email message by receiving an email message from its sender, the email message including an address field in which an account name portion of the address field is a descriptor of the intended recipient of the email message and which is different from a correct account name of the intended recipient, wherein the descriptor being a combination of one or more identifying elements associated with the intended recipient. The method further includes locating in a database of descriptors and email addresses the email address associated with the descriptor and forwarding the message to the email address yielded by the database.

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PCT/PTO 24 FEB 2000

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## SYSTEM FOR HANDLING ELECTRONIC MAIL

### Field of the invention

This invention relates to systems for addressing and conveying electronic mail messages and refers particularly, though not exclusively, to a system which  
5 has an easier and more logical determination of email addresses and, further, which is capable of handling and possibly delivering normally undeliverable electronic mail messages.

### Definitions

Throughout this specification a reference to the internet is to be taken as  
10 including a reference to the world wide web.

### Background to the invention

In recent years communication by email has become commonplace. Email, a contraction of the words "electronic mail", refers to systems which allow messages to be sent between sites connected by data links. The most popular  
15 email system is based on the internet, a worldwide network of interconnected computer networks. Any user connected to the internet can send email to any other user. Internet users use email-client software which connects them via a telephone line and a modem to a gateway into the internet. The email client sends the message via the internet to a mail server. A mail server is a computer  
20 connected to the internet and equipped to receive, store and forward or deliver email messages. If person A wishes to send an email to person B, person A enters the message into his computer, which then sends the message data to a mail server via the internet. Person B then instructs his computer to check whether the mail server has any messages for him, and when such a message is  
25 found, the mail server sends the data to his computer, where person B can access it.

The same principles apply to email systems which do not connect to the

internet, for example, many corporations use email within their enterprise, in which case it is transmitted via their intranet.

Email messages are typically structured according to a protocol known as SMTP (Simple Mail Transfer Protocol) which includes specification of an addressing format that enables email messages to be routed or directly delivered to the correct destination SMTP server. The address forms part of each email's header information. The usual address structure is "accountname@hostname", where "accountname" is the name of the user to whom the email is destined to be delivered; and "hostname" is the name of the host computer where the user has an account. "Hostname" generally comprises a hierarchical series of domain names, separated by periods. For example, "inform.com.au" is the name of the host computer named "inform" in the "com" (commercial) domain within the "au" (Australian) domain.

The "accountname" is typically an arbitrary alpha-numeric string chosen by the user. For example, "the boss@inform.com.au" could be the email address for an individual person at "inform", yet that person might not be named "boss", but could be the boss, or owner, of the business.

As evidenced by the foregoing example, there is not necessarily any obvious correlation between the email address and the name of the actual account holder, as no standards have been established to regularise this aspect of the SMTP protocol. Consequentially, a person wishing to send an email to a person called John Smith at a business known as Informatel, but who does not know his email address, might guess that the address is "john\_smith@informatel.com.au; johnsmith@informatel.com.au; or "jsmith@informatel.com.au", or any number of similar permutations.

If the email address is incorrect, it is common practice for the mail server to "bounce" the email - that is, to return it to the sender along with a message explaining the reason the message could not be delivered. The most common reasons for delivery failure are that the "hostname" specified in the address field could not be found, for example because of a spelling error; or that the user

name specified in the address field did not correspond to any user registered with the host specified.

In an effort to provide a means of discovering correct email addresses, numerous directory databases have been established, whereby a person's or corporation's email address can be searched for based on key indicators such as name, address, telephone number, geographical location, and so forth. Such directories have only partly solved the problem of obtaining email addresses as they are not comprehensive. They are also inconvenient to use because the person sending the email must access a directory and search for the desired email address as an extra step in the process of sending an email.

It is therefore an object of the present invention to provide an improved system for addressing and conveying email messages which addresses some of the limitations of the prior-art addressing and conveying schemes, and allows the sender of an email to use certain well-known descriptors of the intended addressee as an alternative to the addressee's actual account and domain names.

A further object of the present invention is to provide an improved system for dealing with undeliverable email messages by attempting to discern the likely correct email address based on the incorrect one supplied.

## 20      **Summary of the invention**

According to a first aspect of the present invention, there is provided a method of conveying an email message including an address field in which an account name portion of the address is a descriptor of the intended recipient of the message and which may be different from the account name of the intended recipient, including the steps of locating in a database of descriptors and email addresses the email address associated with said descriptor, and transmitting the message to the email address yielded by the database.

According to a further aspect of the present invention, there is provided a

system handling undeliverable electronic mail, including the steps of receiving an email message including an invalid destination address, searching a database for records partially or completely matching parts of said destination address and, if a prescribed threshold of match is exceeded, forwarding said email message to a valid email address retrieved from said database according to the result of said search.

According to another aspect of the present invention, there is provided a method of conveying an email message including the steps of receiving an email message forwarded by a sender, the email message including an invalid destination address, searching a database for records partially or completely matching parts of said destination address, and sending a notification message to the sender of said email message, said notification message advising the sender of the results of said database search.

The invention also provides a method of conveying an email message including the steps of receiving the email message from its sender, the email message including an address field in which an account name portion of the address is a descriptor of the intended recipient of the message and which may be different from the account name of the intended recipient, locating in a database of descriptors and email addresses the email address associated with said descriptor, and transmitting the message to the email address yielded by the database.

Preferably, the database includes fields corresponding to commonly-used identifiers such as a telephone number, business name, street address, or personal name.

Preferably, the descriptor is a telephone number associated with the intended recipient. Alternatively, the descriptor may be a business name associated with said intended recipient. Further alternatively, the descriptor may be a personal name associated with said intended recipient.

Furthermore, the descriptor may be a part of a street address associated

with the intended recipient.

The descriptor may also be a combination of one or more identifying elements associated with the intended recipient. For example, the descriptor may comprise a concatenation of a name and city, such as 'johnsmithsydney' or, for greater clarity, 'johnsmith.sydney'. This extension of the inventive concept can be useful for differentiating between several people with the same name. The descriptor may also include a concatenation of name and telephone number, such as johnsmith.61266525689. This, again, is helpful in differentiating between multiple people with the same name, or in cases where there are a number of individual person's email address associated with the one telephone number. It is envisaged that the invention would be arranged so that a great variety of combinations of descriptors can be used in a flexible arrangement. A consequence of this is that the more information included in the descriptor, the less likely for there to be ambiguity or uncertainty.

The present invention may provide a method of generating and conveying a return email notification to the sender of the email message, which reports the status of the database search and whether or not the email has been forwarded. Preferably it will also report when the email message has been received and/or read. This may also include notification to the recipient of the email that a message has been received. The notification may include notification by internet, telephone, facsimile, pager or satellite, and may include the forwarding of the email message. The recipient may be able to select or specify if they are to be notified, and/or if the message is to be forwarded. Status messages may include notification of failure to match the descriptor with an email address, reporting of the email address or addresses found, and other status information which may be of interest to the person creating the email message.

The present invention may also provide a method of generating a notification to an unregistered sender and/or recipient of an email message to encourage them to register with the system of the present invention. The notification may include information on the advantages of the system and/or a registration request. Preferably, the notification will be sent to a particular address



no more than a prescribed number of times in a given period.

An advice of the action taken may also be sent to a registered user whose email message (either as sender or receiver) was the cause of the notice to be sent to the unregistered user.

- 5           The invention also includes means for carrying out the method of conveying email messages described in the preceding paragraphs.

- Another embodiment of the invention is that especially formatted email messages are interpreted as database queries and not as email messages to be readdressed and forwarded. According to one aspect, for example, a person  
10       wishing to ascertain the email address of John Smith can send an email addressed to johnsmith@invention.com with the keyword "find" (for example) as the text of the message, and an email will be returned to the inquirer reporting the results of the search of the database. The johnsmith component may be expressed in different ways,, such as, for example jsmith, smithj, john.smith or  
15       john-smith.

- In another aspect, the present invention includes a computer equipped with email client software adapted to execute the steps of recognising that an email address of a message being sent does not include a host name, for example by the absence of the @ symbol, and appending a predetermined hostname to the  
20       address before sending the email. According to this aspect, use of the email by the sender is beneficially simplified as the sender of the email needs enter only the descriptor information into the email client's address field, after which the email sender adds the host name of the server adapted to perform the steps of the present invention. For example, the email sender enters an address of  
25       johnsmith in the address field of the email client and selects "send". The client then appends @invention.com to form the address johnsmith@invention.com, and sends it to that host. The host invention.com then looks up the database, finds that johnsmith is, for example, techsup@megabig.com.nl and forwards the email to that address.

In an alternative form, the terminal or client (the "terminal") of the sender may recognise that the address of the message being sent is not complete and/or correct. It therefore sends a message (by any suitable means, not necessarily email but including email) to the server which then searches the database for the complete/correct email address of the intended recipient. If the complete/correct address is not found, the sender's terminal is advised and the sender can make the appropriate decision as to what to do. If the complete/correct address is found it is forwarded to the sender's terminal which then inserts the correct/complete address in the email message and sends the message to the intended recipient. If more than one possible complete/correct address is found, the sender's terminal is advised and the sender can make the appropriate selection.

The invention also provides a method of determining an email address including providing a database where email addresses are linked with descriptors relevant for a person at each email address so that a user can provide one or more of the descriptors enabling a search to be conducted of the database to determine the relevant email address, the descriptors including at least one of given name, surname, address, domain name, name of business, and/or telephone number(s).

The database may be at the server, or separate. If separate, the server would recognise that the information given in the account name portion of the address was insufficient or not in the correct form for delivery, and therefore pass the necessary message to the operator of the database who would locate the correct or complete address, and forward the message. Alternatively, the operator of the database could pass the correct or complete address back to the server to enable them to send the message.

The invention also includes a database to enable the method to be performed, the database having fields for email addresses, and separate fields for each of, for example, given name, surname, telephone number, domain name, name of business and/or address; at least one of the separate fields being completed for each email address.

The invention also provides an address system to enable users of computer-based telecommunication systems to independently locate an address of a user, the address system including at least one portion which is the numeric characters of a number of a telecommunications device of the user, the at least  
 5 one portion being that portion which identifies the user. The telephone number may include the area code within the user's country, or may include the country code within the user's country; or may include the personal access number within the user's country.

Preferably, the computer-based telecommunication system is the internet.

10 The device may be a telephone, facsimile, pager, mobile telephone or satellite connected technology.

At least one portion of the descriptor may be alpha numeric; with the alpha optionally including at least a part of a name of the user.

The alpha may precede the numeric, or the numeric may precede the  
 15 alpha.

The present invention may also include an enquiry facility which will allow the sender of the proposed email to ascertain the details of the recipient's universal messaging contact details. These contact details may include the prospective recipient's street address, telephone number, facsimile number,  
 20 mobile telephone number, email address, domain name, pager, or satellite connected details or any other email address information he or she chooses to make available.

### Description of the drawings

Preferred embodiments of the present invention will now be described by  
 25 way of non-limitative example only with reference to the accompanying illustrative drawings, in which:

Figure 1 is a block diagram showing the various functional units of a first embodiment;

Figure 2 is a block diagram showing the various functional units of a second embodiment;

5 Figure 3 is a representation of one example;

Figure 4 is a flow chart for the example of Figure 3; and

Figure 5 is a flow chart for a further embodiment.

### Description of preferred embodiments

Referring to Figure 1, sender 1 is a standard email client, complying with  
 10 SMTP, sending an email intended for delivery to recipient 5. The author of the email using sender 1 composes an email message and sends it to SMTP server 2. When SMTP server 2 attempts to send the message to recipient 5, in the conventional manner, the message will not be deliverable if the address is invalid. For example, the author might have used the address: "john.jones@mega.com"  
 15 when in fact there is no such user registered with the host: "mega.com". The correct address for John Jones could be: "jjones@mega.com". Alternatively, the author may have omitted the hostname altogether, resulting in an address considered invalid by SMTP server 2.

Having determined that the message is undeliverable, SMTP server 2 then  
 20 forwards the message to undeliverable email server 3. Undeliverable email server 3 includes a database including records which relate keywords to valid email addresses. Such keywords might include a person's name, business name, telephone number, street address, or any other identifying information that helps identify the person. On receipt of the undeliverable email, undeliverable email  
 25 server 3 uses substrings of the email address as keywords in an attempt to match a record in database 4.

In this preferred embodiment of the invention, the software is arranged so that if all substrings of the user name part of the email address, delimited by non-alphanumeric characters, match the keywords in full or in part of a database record, the email is forwarded to the email address retrieved from that database record. Continuing the example above where the email was addressed to: "john.jones@mega.com", the database lookup using "john" and "jones" as keywords finds a record for John Jones, including the correct email address, namely: "jjones@mega.com".

If the database lookup is ambiguous, that is there is more than one record including the keywords "john" and "jones", undeliverable email server 3 sends a message back to the author explaining that the original address used was invalid. and reporting the several "john jones" records found, so that the author can select the correct address. When the correct one of several possibilities has been selected, the author completes the address and forwards the email message; or returns the message to undeliverable email server 3 which then forwards it to the desired recipient.

The database lookup function in the embodiment of the invention described in relation to Figure 1 is normally performed at the site of undeliverable email server 3. However, this function could be provided by a database server located elsewhere.

Furthermore, database 4 may well, in practice, not be located at one site but may be distributed over multiple sites. For example, if server 3 receives an email addressed with a descriptor including the word "japan", a database query could be sent to a suitable database server in Japan. Similarly, if undeliverable email server 3 were to receive an email addressed to a phone number starting with, for example, "49", it could either send a query to the telephone number database in Germany, or it could forward the whole message to a suitable server in Germany for further handling.

Referring to Figure 2 where similar components have similar reference numerals with a prefix number 2, email client 21 is a standard email client

complying with SMTP. The author of the email message in this example does not know the address of the person he wishes to send it to, but does know the person's telephone number 6193312345 which, including the country code, 61 in this example, is unique to that person. The author therefore addresses the message to 6193312345@phoneserv.net, phoneserv.net being the host name of the special server of this exemplary embodiment of the present invention.

E-mail client 21 then sends the SMTP message addressed to 6193312345@phoneserv.net to internet 22 via a suitable router. The message is subsequently routed to server 23 which is running on the host called phoneserv.net. Server 23 is adapted to access database 24 which is a database mapping email addresses to descriptors, including, in this example, personal name, business name, street address, and telephone number. In this example, a search of the entries for telephone number 6193312345 returns the email address xyz@domain.com. Server 23 then substitutes the address xyz@domain.com for the received address of 6193312345@phoneserv.net and sends the message with this address onwards via the Internet to the desired destination.

To further enhance the usefulness of this embodiment of the invention, the software is arranged so that multiple keywords and/or fields can be combined within the descriptor of the address. For example, a database lookup of the descriptor johnsmith may return many matches. To narrow the search, part or whole of his address can be added to the descriptor. For example, if the sender knows that John Smith lives in Centennial Street, Bankstown, he could use the descriptor johnsmith.bankstown or preferably johnsmith.centennial.bankstown. The latter would probably return a unique database match. The database engine of this embodiment of the invention applies well-known software techniques to allow free-form matching of multiple keys within descriptors.

It is envisaged that where possible the telephone number of the addressee would be used as the descriptor. By including the country code and/or area code in the telephone number, such a descriptor is likely to uniquely specify the desired addressee. Furthermore, telephone numbers can be readily ascertained, for example from directory assistance services or telephone directories. Where

several people may be associated with one telephone number, for example several employees of a business or several residents at one home, further qualification can be added to the descriptor. For example, the person's given name or names can be included to form a descriptor such as john.61247515280.

- 5 The database engine can be arranged so that if the search of the database gives returns a unique email address, any further qualification of the descriptor is ignored. In the example of john.61247515280, if 61247515280 returns a unique match, the prepended "john" is ignored.

- 10 In the case where no match is found or multiple matches result in ambiguity, server 23 returns a message to the sender explaining the nature of the problem which may include additional information on some or all of the matches. The sender might then try again using a different or expanded descriptor by for example:

johnsmith61247515280..

- 15 In an alternative in this embodiment of the invention, email client 21 is further adapted to automatically include a predetermined hostname if none is included in the address entered by the author of the email being sent. In other embodiments, server 23 is adapted to accept email addresses which do not include a hostname. These enhancements allow the user to enter only a
- 20 descriptor, for example just a telephone number, the database then providing the server with the required, relevant information obtained from the database, and the server then converting this to the relevant email address.

- Whereas the signalling connections of the exemplary embodiment of Fig 1 are described as being discrete paths it will be understood that in practice these
- 25 connections can advantageously be implemented as a network such as the Internet.

For the embodiment of Figure 2, although the database search function in the embodiment of the invention described above is performed at the site of server 23, it will be understood that this function could be provided by a database

server located elsewhere. Furthermore, the database may well, in practice, not be located at one site but be distributed over multiple sites. For example, if server 23 receives an email addressed with a descriptor including the word "japan" a database query could be sent to a suitable database server in Japan. Similarly, if  
 5 server 23 were to receive an email addressed to a telephone number starting with, for example, "49", it could either send a query to the telephone number database in Germany, or it could forward the whole message to a suitable server in Germany for further handling.

The invention is also applicable to unifixd messaging systems whereby  
 10 messages sent by one medium may be delivered by another. For example, by using voice-recognition technology, text-to-speech, speech-to-text recognition or keypad operation, a telephone message may be delivered by facsimile, internet or intranet, or by satellite; or an email message sent via the internet may be delivered to a mobile telephone, satellite, pager, facsimile, or the like.

15 It is also envisaged that part or all of the functionality of the invention could be provided by software running at the email sender's site. For example, an email client could be adapted to automatically send a search request to a remote database, substitute a returned email address for a descriptor entered by the author of the email, and then send the email to that address. It is of course also  
 20 envisaged that part or all of the invention can be implemented as software running at an internet service provider's site.

In an alternative form, the terminal or client (the "terminal") of the sender may recognise that the address of the message being sent is not complete and/or correct. It therefore sends a message (by any suitable means, not necessarily  
 25 email but including email) to the database server which then searches the database for the complete/correct email address of the intended recipient. If the complete/correct address is not found, the sender's terminal is advised and the sender can make the appropriate decision as to what to do. If the complete/correct address is found it is forwarded to the sender's terminal which then inserts the  
 30 correct/complete address in the email message and sends the message to the intended recipient. If more than one possible complete/correct address is found,



the sender's terminal is advised and the sender can make the appropriate selection.

This allows for security in that the sender will know that the email message will only be sent if there is certainty. It also may allow a manual override in that  
 5 the decision to send the email message is up to the sender. Furthermore, the text of the message is not being held in the database or search engine during the processing, it is being held at the sender's terminal.

If a number possible complete/correct addresses are found, the selection of one by the sender may cause the selected address to be inserted in the email  
 10 message "To:" field and for it to be sent.

Also, when the database search/request is sent by the sender's terminal it may specify a degree of certainty (eg. 80%) so that when the database is searched it will select only those possible addresses where the degree of certainty of a correct match is the same as or greater than that specified.

15 The example of Figures 3 and 4 accepts mail in a number of formats, using the mail address provided as keywords to search a database of people and their real email addresses. Various modules of the system run on a number of servers.

The domain name server 31 translates the various names into IP addresses. It also defines the mail servers. The first mail server 32 receives and  
 20 stores all mail for the system of the present invention. It is programmed to store all mail into a single account.

The mail "client" 34 allows the system of the present invention to take control of the client for such activities as fetching and replying to mail. It is set to fetch mail, for example, every two minutes. When new mail arrives, the client sets  
 25 a flag in the flag application 35 to show that mail needs to be processed.

The client is set up with multiple mail "accounts", each of which has its own "From:" address. These accounts are used when replying to mail to tag different

categories of mail, so the "From:" address and "Reply To:" address sent in reply can be used to select an appropriate response when a customer replies to them. For example, all messages sent to customers, which ask them to select from a list of possible matches, has the "From:" address of "x%select@invention.com".

- 5 All mail messages are stored in the client, being moved out of the "in" folder into the folder appropriate to the message, eg messages that have no match in the people database 38 are stored in the "no match" folder for future re-matches.

The flag application 35 stores a status flag that mail is ready for processing. This application is separate from the system of the present invention to avoid  
10 deadlocks that might occur when the system of the present invention tries to run a script in the mail client 34 while the other is trying to send a message to the find application 36, which contains the intelligence for the system of the present invention. It periodically polls the flag application 35 to see if mail is available. If the flag is set, it processes the mail one by one. The "To:" address of each mail  
15 item is used to determine the action required. The flowchart for this is illustrated in Figure 4.

Items with no "To:" address are ignored. Delivery failures messages are returned to the original sender with an advertising message. Selection messages contain "%select@invention.com" in the "To:" address, and these are processed to  
20 extract and act on the selection.

Messages that are addressed to other servers are sent on unmodified, except the "return-Path:" is tagged to allow detection of delivery failure.

Other messages are treated as a request for the present invention database lookup function.

- 25 As well as the specified fields in the database, there is another calculated field which is a concatenation of all other fields (except "email") with spaces between them. This is the only field that is actually searched during a lookup. The algorithm for processing the "To:" address of messages to be processed as lookup

requests is as follows:

- Except in the instance of domain name, everything after the "@" or "%" may be ignored.
- 5 • Everything other than letters or numbers is interpreted as a word break.
- What remains is the list of keywords.
- A search is performed to find all records which contain any of the keywords.
- 10 • Every record found is then examined, and if the combined field for that record contains every keyword, that record is added to the match list.
- If there is more than one match, a selection request is sent.
- If there is no match, a request for more keywords is sent.
- 15 • If there is one match, the mail is redirected to the appropriate address.

The database and web server 37 has a built-in web server. The web server allows the administrator to edit the people database 38 and view the mail log 39, with appropriate access security. It also allows customers to add their details via the web, but not to edit them once they are added.

- 20 The people database 38 has a script 40 that is run when it is edited, which sets a flag in the application. This causes it to re-search the database for every mail item in its "no match" folder, so that customers can add their details to the database after mail addressed to them is received, and have the mail correctly delivered. Mail items in the "no match" folder may be held there indefinitely, or for
- 25 a defined period of time.

The people database 38 stores all information about the people. As well as the defined fields, it also has a calculated "combined" field, which is a combination of all fields except the email address. This combined field is used for keyword searches. Some of the fields have input checking: the telephone fields must be  
5 numeric only (so that searches based on telephone numbers work) and the email field is mandatory.

It may be necessary to tag the "Reply-To:" address of email messages so that undeliverable mail could be trapped and acted on appropriately. A simple TCP/IP application may be used to send messages.

10 For all embodiments, if the server located an excessive number (which may be a defined number) of potential matches for the complete/connect address it may raise a query with the sender requesting further information on the proposed recipient to enable the number of potential matches to be reduced. For example, if the sender has supplied the keywords "john.smith.richmond" with there being a  
15 large number of cities in the world named "Richmond", the number of potential matches would be quite high. Therefore the server could request more information such as, for example, a way of designating which city of Richmond is relevant. This may be by providing country and state details, or by providing the country and/or state and/or distinct telephone codes.

20 To now refer to Figure 5, an additional function may be included in the present invention to enable automatic notification/information to be sent by email to people who may be interested in registering with the system and having the relevant information in the database. The criteria for a person to be sent this notification/information email is based on email messages they have sent to or  
25 received from, a person registered to use the present invention and thus whose information is on the database. If, for instance, a particular registered user sends an email to a non-registered user, the system will identify the non-registered user and automatically send an email message to that person informing them of the system and its benefits. Also included in the email message will be mention of the  
30 registered user name or at least the email address of the person, who either recently sent them an email message or being a person to whom they recently

sent an email message.

The automatic email message generated will be received shortly after the user receives the original email that triggered its creation.

There are many possible mechanisms for implementing this additional  
5 functionality. One method involves additional configuration at the participating  
ISP's site, along with an upgrade in functions of the database search engine  
server. Figure 5 shows diagrammatically the elements involved in this embodiment  
of the present invention. The ISP's SMTP server 42 is configured to forward  
undelivered mail to the mail server 43. The server 43 attempts to resolve the  
10 correct recipient address through the information contained in the original TO:  
address field. If it is successful, the server 43 contacts the recipients ISP (SMTP  
server) 46 and forward the email, the recipient 47 typically receives the email via a  
connection between his email client and the ISP's POP/IMAP server. The  
additional configuration required for the server 42 involves the periodic delivery of  
15 an extract of the mail log on the ISP's SMTP server 42 to the mail server 43. The  
mail log 44 typically contains detailed information about all mail sent and received  
by the mail server 42. An extract of this mail log 44 is generated to include the  
destination address and sender address pairs for every email that has passed  
through the server since the last time the extract was created (multiple instances  
20 of the same pair would be removed). The extract is then sent to the mail server 43  
where it is processed. Processing involves querying the database 45 for the  
existence of each and every address in the mail log extract. If the address being  
queried is not found to exist in the database 45 (signifying an unregistered user),  
the system generates a notification/information email for delivery to the  
25 unregistered person who had previously received from or sent an email to the  
registered user. That notification email outlines the benefits of the system, advise  
of the person they have received or sent an email message to or from a registered  
user, and invite them to register. To avoid unregistered users repeatedly receiving  
information on the system and an invitation to register, the database 45 and query  
30 engine may be suitably equipped to determine how many email messages have  
been sent to a particular unregistered user, and to cease sending the email

messages when a defined limit is reached. This may be an open ended feature, or one whereby after a prescribed period the unregistered user may again receive information on the system. Also the auto-mailer feature should be optional for each registered user. That is, if a registered user doesn't want the system

5 contacting recipients with the notification email message then the registered user should be able to switch this feature on/off. The information forwarded to the unregistered user may include the name/contact details of the registered user whose email triggered the sending of the information.

The descriptor for any one registered user may be changed by that user

10 from time to time via the worldwide web, email, telephone, mail, or as otherwise allowed.

It will be understood that the invention disclosed and defined in this specification extends to all alternative combinations of two or more of the individual features mentioned or evident from the text or drawings. All of these

15 different combinations constitute various alternative aspects of the invention.

It will also be understood that the term "comprises" (or its grammatical variants) as used in this specification is equivalent to the term "includes" and should not be taken as excluding the presence of other elements or features.

ART 34 AUST

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The claims defining the invention are as follows:

- 1 A method of conveying an email message including an address field in which an account name portion of the address is a descriptor of the intended recipient of the message and which is different from the account name of the  
5 intended recipient, including the steps of searching in a database of descriptors and email addresses for the email address associated with said descriptor and, if an email address is located which and where a prescribed threshold of match is exceeded, transmitting the message to the email address yielded by the database; the descriptor being a combination of one or more identifying elements associated  
10 with the intended recipient.
- 2 A system for handling undeliverable electronic mail, including the steps of receiving an email message including an invalid destination address, searching a database for records partially or completely matching parts of said destination address, and if a prescribed threshold of match is exceeded, forwarding said email  
15 message to a valid email address retrieved from said database according to the result of said search.
- 3 A method of conveying an email message including the steps of receiving an email message forwarded by a sender, the email message including an invalid destination address, searching a database for records partially or completely  
20 matching parts of said destination address, and sending a notification message to the sender of said email message, said notification message advising the sender of the results of said database search.
- 4 A method of conveying an email message including the steps of receiving the email message from its sender, the email message including an address field  
25 in which an account name portion of the address is a descriptor of the intended recipient of the message and which is different from the account name of the intended recipient, locating in a database of descriptors and email addresses the email address associated with said descriptor, and forwarding the message to the email address yielded by the database; the descriptor being a combination of one  
30 or more identifying elements associated with the intended recipient.

5 A method as claimed in claim 4, wherein the database includes fields corresponding to commonly-used identifiers such as a telephone number, business name, street address, personal name, alias, or nickname.

6 A method as claimed in any one of claims 1, 4 or 5, wherein the descriptor  
5 is selected from a list including a telephone number associated with the intended recipient, a business name associated with said intended recipient, a personal name associated with said intended recipient, and a part of a street address associated with the intended recipient.

7 A method as claimed in claim 1 or any one of claims 4 to 6, wherein the  
10 descriptor includes a concatenation of a name and city.

8 A method as claimed in claim 1 or any one of claims 4 to 6, wherein the descriptor includes a concatenation of name and telephone number.

9 A method as claimed in any one of claims 1 to 8, wherein there is included  
15 the step of generating and conveying a return email notification to the sender of the email message, which reports the status of the database search and whether or not the email has been received.

10 A method as claimed in claim 9, wherein the return email notification reports the status of the database search and whether or not the email message has been received.

20 11 A method as claimed in claim 10, wherein the return email notification also reports when the email message has been received.

12 A method as claimed in claim 9 or claim 10, wherein the return email notification includes notification of failure to match the descriptor with an email address.

25 13 A method as claimed in any one of claims 1 to 12, wherein especially formatted email messages are interpreted as database queries and not as email



messages to be readdressed and forwarded.

14 A method of determining an email address including providing a database where email addresses are linked with descriptors relevant for a person at each email address so that a user can provide one or more of the descriptors enabling  
5 a search to be conducted of the database to determine the relevant email address, the descriptors including at least one of given name, surname, address, name of business, and/or telephone number; the server being adapted to recognise that the information given in the account name portion of the address was insufficient or not in the correct form for delivery, and passes the necessary  
10 message to the operator of the database which locates the correct or complete address, and forwards the message.

15 A method as claimed in claim 14, wherein the database is at the server.

16 A method as claimed in claim 14, wherein the database is separate from the server.

15 17 A method as claimed in any one of claims 14 to 16, wherein the operator of the database passes the correct or complete address back to the server to enable it to send the message.

18 A database to enable the method of any one of claims 1 to 17 to be performed, the database having fields for email addresses, and separate fields for  
20 each of given name, surname, telephone number, name of business and/or address; at least one of the separate fields being completed for each email address.

19 An address system to enable users of computer-based telecommunication systems to independently locate an address of a user, the address system  
25 including at least one portion which is the numeric characters of a number of a telecommunications device of the user, the at least one portion being that portion which identifies the user.

- 20 An address system as claimed in claim 19, wherein the number of the telecommunications device includes at least one of the area code within the user's country; the country code of the user's country; or the personal access number within the user's country.
- 5 21 An address system as claimed in claim 19 or claim 20, wherein the computer-based telecommunication system is the internet.
- 22 An address system as claimed in any one of claims 19 to 21, wherein the device may be selected from a list including a telephone, facsimile, pager, mobile telephone and satellite connected technology.
- 10 23 An address system as claimed in any one of claims 19 to 22, wherein at least one portion of the descriptor is alpha numeric.
- 24 An address system as claimed in claim 23, wherein the alpha includes at least a part of a name of the user.
- 15 25 A method as claimed in any one of claims 1 to 17, wherein there are provided additional steps including determining from the database if either of the sender or recipient are not a registered user, and forwarding to any such unregistered user information on the system and its advantages and/or a request to register.
- 26 A method as claimed in claim 25, wherein an advice is forwarded to the sender or recipient who is a registered user that the information has been forwarded to the unregistered user.
- 27 A method as claimed in claim 25 or claim 26, wherein the information included all necessary documents to enable the unregistered user to become registered as a user.
- 25 28 A method as claimed in claim 27, wherein when the unregistered user is registered as a user, a search is conducted to determine if any messages are

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awaiting forwarding to the user and, if so, to forward to the user any such messages.

- 29 A method as claimed in claim 28, wherein when a further advice is sent to the registered user advising the registered user that the unregistered user has  
5 become registered.

Figure 1

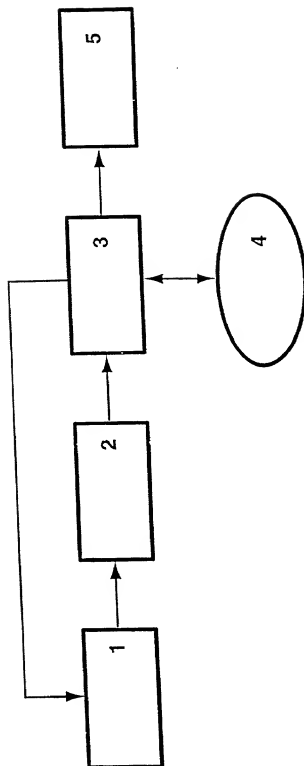
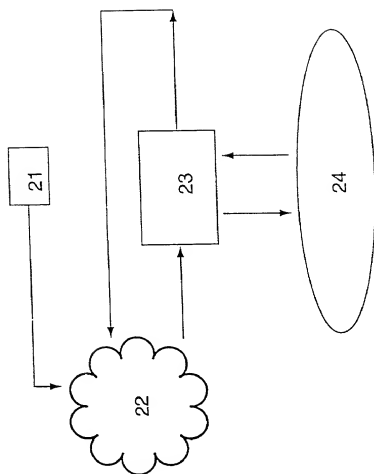


Figure 2



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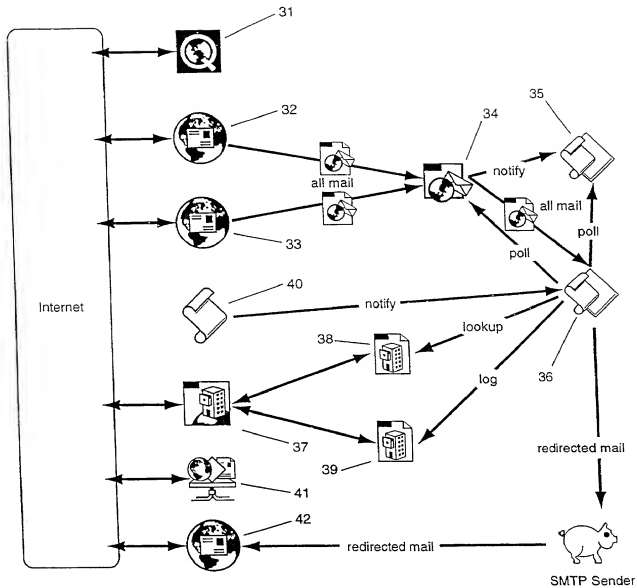


Figure 3

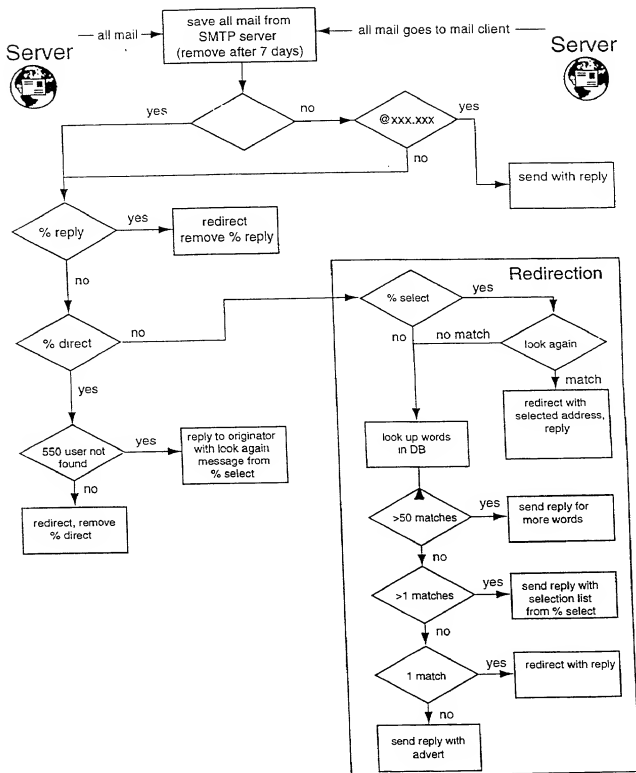


Figure 4

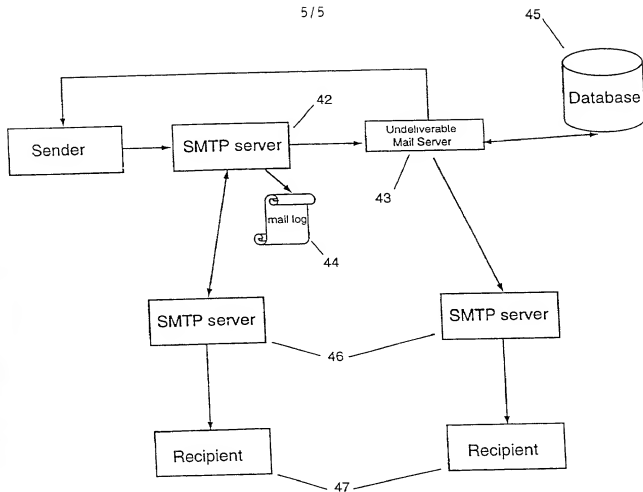


Figure 5





#3

Case No. 10329/3

**DECLARATION FOR PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **SYSTEM FOR HANDLING ELECTRONIC MAIL**, the specification of which:

- ☐ is attached hereto.  
☒ was filed on February 24, 2000 as Application Serial No. 09/486,648.  
☐ and was amended on February 24, 2000 (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability as defined in Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

**Prior Foreign Application(s)**

**Priority Claimed**

PP1638

Australia

05/02/98

☒

☐

(Number)

(Country)

(Day/Month/Year Filed)

Yes

No

**Prior Foreign Application(s)**

**Priority Claimed**

PP5947

Australia

16/09/98

☒

☐

(Number)

(Country)

(Day/Month/Year Filed)

Yes

No

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)

(Filing Date)

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

PCT/AU99/00079

05/02/99

Completed

(Application Serial No.)

(Filing Date)

(Status-patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Inventor's Signature

Full name of first inventor

Residence

Citizenship

Post Office Address

Date: 2/05/2001

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Full name of second joint inventor  
Residence  
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*2/5/01*

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Inventor(s): Dennis Andrew Benjamin and Nicholas Alan Rodda  
Title: SYSTEM FOR HANDLING ELECTRONIC MAIL

PTO/PCT Rec'd 10 MAY 2001 #3  
09/486648

POWER OF ATTORNEY

The specification of the above-identified patent application:

is attached hereto

was filed on February 24, 2000 as application Serial No. 09/486,648

I hereby revoke all previously granted powers of attorney in the above-identified patent application and appoint the following attorneys to prosecute said patent application and to transact all business in the Patent and Trademark Office connected therewith:

John C. Freeman (34,483)  
William H. Frankel (30,337)

Please address all correspondence and telephone calls to John C. Freeman in care of:

Brinks Hofer Gilson & Lione  
P.O. Box 10395  
Chicago, IL 60610  
(312)321-4200

The undersigned hereby authorizes the U.S. attorneys named herein to accept and follow instructions from \_\_\_\_\_ as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorneys named herein will be so notified by the undersigned.

A Pty Ltd., an Australian corporation, certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

☒ An assignment from the inventor(s) of the patent application identified above, a copy of which is attached hereto.  
OR

☐ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, frame \_\_\_\_\_.  
OR

☐ A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

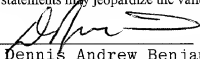
1. From \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, frame \_\_\_\_\_, or a copy thereof is attached.
2. From \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, frame \_\_\_\_\_, or a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

The undersigned has reviewed the assignment or all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature:  Date: 2/05/2001  
Name: Dennis Andrew Benjamin  
Title: Chairman and Managing Director